

Climate Pollution Reduction Grants: EPA Programs, Tools, and Resources used for Evaluation and Quantification of GHG Reduction Measures

Housekeeping Notes:

- Mics are automatically muted and all cameras are turned off.
- Please enter all questions in the chat box and “like” any questions already asked that you would also like answered. Please submit questions prior to the Q&A session, if possible. Questions will be answered during the Q&A session.
 - *Note: We cannot answer any questions regarding the implementation grants at this time.*
- We encourage you to answer the poll questions which will pop-up periodically throughout the training and will also show up in the chat box (*Reserved for Grantees*).
- Slides and links to additional resources will be shared after the training with training registrants.
- A recording and Q&A document will be posted to the CPRG website after the training.

Disclaimer

The information contained in this presentation is intended for the sole purpose of providing tools and technical assistance to planning grant recipients under EPA's Climate Pollution Reduction Grants program. Specific questions on how this information relates to a particular grantee's deliverables should be directed to that grantee's EPA Project Officer.

All the examples presented and discussed in this presentation are to help set the stage for how EPA's tools can be used. There are many types of measures we expect grantees will be considering that are not covered in this training. Nothing contained in this presentation should be construed as creating new requirements beyond those already enumerated in the CPRG planning grant program guidance or the terms and conditions that apply to the grantee.



INVESTING IN AMERICA

CLIMATE ACTION FUNDING FAIR

U.S. Environmental Protection Agency

Investing in America: Climate Action Funding Fair:
<https://www.epa.gov/inflation-reduction-act/investing-america-climate-action-funding-fair>

Session Title	Date	Time (90-120 min)
Electric Power	Monday, August 7	2pm ET
Agriculture and Working Lands	Tuesday, August 8	12pm ET
Tribal Programs	Tuesday, August 8	3pm ET
Transportation	Wednesday, August 9	3pm ET
Buildings	Thursday, August 10	2pm ET
Industrial and Waste	Friday, August 11	12pm ET

EPA Programs, Tools, and Resources used for Evaluation and Quantification of GHG Reduction Measures Training:

- Overview of CPRG Requirements for GHG Reduction Measures
- Overview of CPRG Webpages on EPA Programs, Tools, and Resources used for Evaluation and Quantification of GHG Reduction Measures
- Examination of mitigation approaches for key sectors and how EPA Programs, Tools, and Resources can be used in connection with those approaches

Overview of CPRG Requirements for GHG Reduction Measures

What is a Measure?

“Measure” is intended to reflect the full breadth of the CPRG authorizing language directing planning grants to eligible entities for plans that include “programs, policies, measures, and projects that will achieve or facilitate the reduction of greenhouse gas air pollution.”

CPRG Measure Quantification Requirements

- States and locals / tribes and territories have two planning phase deliverables with GHG reduction quantification requirements:
 - Priority Climate Action Plans (PCAPs) due March 1, 2024 / April 1, 2024
 - Comprehensive Climate Action Plans (CCAPs) due 2 / 4 years from award (summer-fall 2025 / summer-fall 2027)
- Participants are asked to identify a diverse range of GHG mitigation measures:
 - Grantees encouraged to “adopt and implement ambitious GHG reduction measures across multiple key sectors” (i.e., industry, electricity generation, transportation, commercial and residential buildings, agriculture/natural and working lands, and waste and materials management)
- They must also quantify the emission reductions associated with each measure:
 - PCAPs require measure-level GHG quantification for priority measures in one or more sectors
 - CCAPs require measure-level GHG quantification for measures across all key sectors

CPRG Webpages on EPA Programs, Tools, and Resources used for Evaluation and Quantification of GHG Reduction Measures

Suggested Steps for Evaluation and Quantification of GHG Reduction Measures

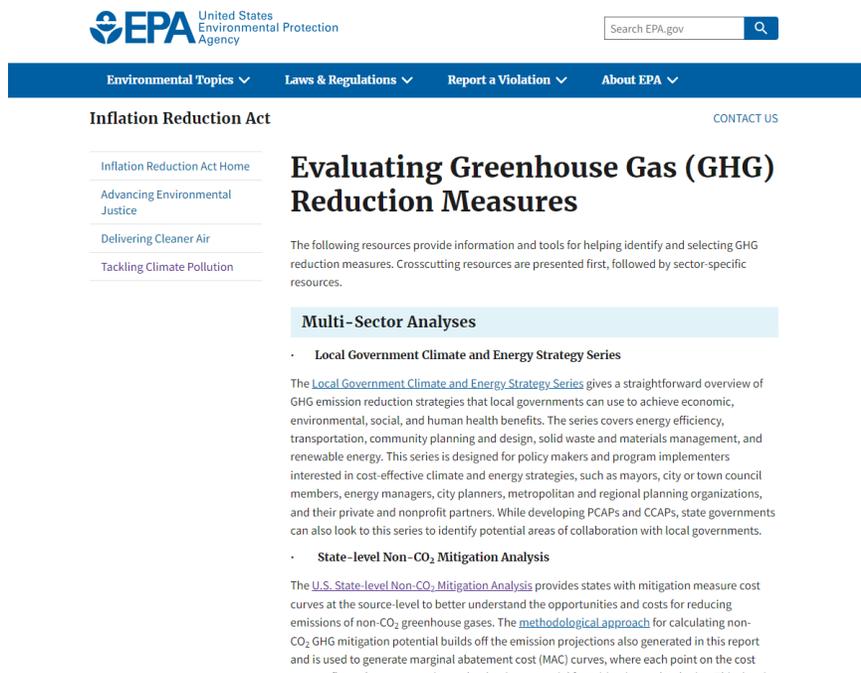
Evaluation: Refers to the identification of potential GHG measures for a given sector or source and the evaluation of the GHG reduction potential, costs, and other benefits associated with implementation of the measure.

Quantification: Refers to modeling or the application of other tools or resources to quantify the GHG reductions that would occur annually over the project's lifetime if implemented.

Steps:

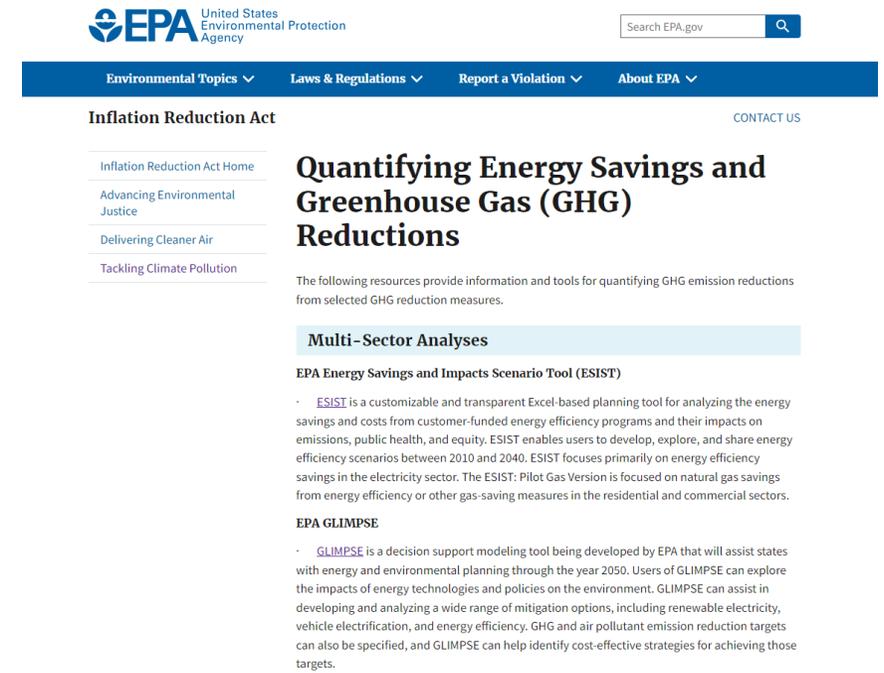
1. Identify and evaluate GHG emission reduction measures
2. Use evaluation results to select PCAP and CCAP measures
3. Apply a quantification tool to assess emission impacts

CPRG Webpages on EPA Programs, Tools, and Resources for Evaluation and Quantification of GHG Reduction Measures



The screenshot shows the EPA website header with the logo and search bar. The navigation bar includes 'Environmental Topics', 'Laws & Regulations', 'Report a Violation', and 'About EPA'. The main content area is titled 'Inflation Reduction Act' and features a sidebar with links: 'Inflation Reduction Act Home', 'Advancing Environmental Justice', 'Delivering Cleaner Air', and 'Tackling Climate Pollution'. The main heading is 'Evaluating Greenhouse Gas (GHG) Reduction Measures'. Below the heading, a paragraph states: 'The following resources provide information and tools for helping identify and selecting GHG reduction measures. Crosscutting resources are presented first, followed by sector-specific resources.' A light blue box titled 'Multi-Sector Analyses' contains two bullet points: 'Local Government Climate and Energy Strategy Series' and 'State-level Non-CO₂ Mitigation Analysis'. The 'Local Government Climate and Energy Strategy Series' section includes a paragraph: 'The Local Government Climate and Energy Strategy Series gives a straightforward overview of GHG emission reduction strategies that local governments can use to achieve economic, environmental, social, and human health benefits. The series covers energy efficiency, transportation, community planning and design, solid waste and materials management, and renewable energy. This series is designed for policy makers and program implementers interested in cost-effective climate and energy strategies, such as mayors, city or town council members, energy managers, city planners, metropolitan and regional planning organizations, and their private and nonprofit partners. While developing PCAPs and CCAFs, state governments can also look to this series to identify potential areas of collaboration with local governments.' The 'State-level Non-CO₂ Mitigation Analysis' section includes a paragraph: 'The U.S. State-level Non-CO₂ Mitigation Analysis provides states with mitigation measure cost curves at the source-level to better understand the opportunities and costs for reducing emissions of non-CO₂ greenhouse gases. The methodological approach for calculating non-CO₂ GHG mitigation potential builds off the emission projections also generated in this report and is used to generate marginal abatement cost (MAC) curves, where each point on the cost

<https://www.epa.gov/inflation-reduction-act/evaluating-greenhouse-gas-ghg-reduction-measures>



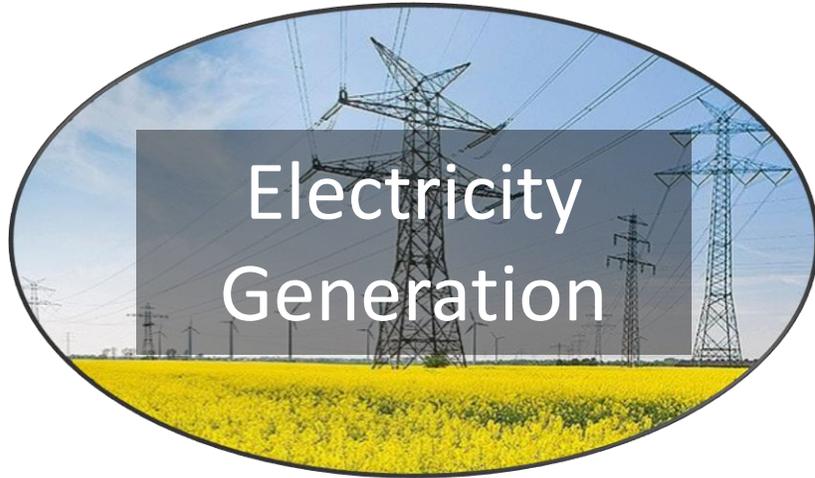
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<https://www.epa.gov/inflation-reduction-act/quantifying-energy-savings-and-greenhouse-gas-ghg-reductions>

Examination of mitigation approaches for key sectors and how EPA Programs, Tools, and Resources can be used in connection with those approaches

An orange garbage truck is shown from a high angle, dumping a large pile of trash into a landfill. The background shows a hazy landscape with some birds flying in the sky.

Waste & Materials
Management

A landscape featuring a field of bright yellow flowers in the foreground and several high-voltage electrical transmission towers with power lines stretching across a clear blue sky in the background.

Electricity
Generation

A close-up view of a white electric vehicle (EV) being charged at a station. A charging cable is plugged into the car's port, and a yellow charging station sign is visible in the background.

Transportation

A dark blue oval containing the text "KEY SECTORS" in white, bold, uppercase letters.

KEY SECTORS

An aerial view of a large agricultural field with distinct, wavy patterns of green and brown, likely representing different crops or stages of land management.

Agriculture/
Natural &
Working Lands

A large industrial facility, possibly a steel mill or refinery, with multiple smokestacks emitting white plumes of smoke. The facility is situated near a body of water under a blue sky with scattered clouds.

Industry

A view of a multi-story brick building complex, likely a mix of commercial and residential units, with a mix of architectural styles and greenery in the foreground.

Commercial &
Residential
Buildings

Clean and Renewable Electricity Generation: Policy & Program Examples



Clean and Renewable Energy Targets

Requires specified percentage of energy to be from clean and/or renewable sources; includes state Renewable Portfolio Standard (RPS) and Clean Energy Standards (CES)



Net Metering

Allows utility customers who generate their own electricity from solar power to sell the electricity they aren't using back into the grid



Community Choice Aggregation (CCA)

Local governments procure power from alternative supplier while still receiving transmission and distribution from existing provider



Renewable Energy on Contaminated Lands

Financial incentives and streamlined permitting programs encourage reuse of contaminated lands, landfills, and mine sites for renewable energy production

Reducing Demand with Energy Efficiency: Policy & Program Examples



Energy Efficiency Resource Standards (EERS)

Requires electric utilities or statewide agency to meet a percentage of electricity usage through energy efficiency programs



Energy Efficiency Programs

Provides financial incentives and technical assistance to encourage customers to invest in energy-efficient technologies, services, and behavior change



Lead-By- Example

Promotes EE and policies for public facilities, equipment, and government operations through energy data management and evaluation



Appliance and Equipment Efficiency Programs and Standards

Sets minimum energy efficiency standards for appliances and equipment used in homes, businesses, and other applications; programs to pick up and dispose of old appliances

EPA's Tools and Resources - Electricity Generation and Use Measures (Evaluation)

- [Energy and Environment Guide to Action \(GTA\)](#): offers real-world best practices to help states design and implement policies that reduce emissions associated with electricity generation and energy use. Chapters on:
 - Overview of Electric Utility Policies
 - Electricity Resource Planning and Procurement
 - Electric Utility Regulatory Frameworks and Financial Incentives
 - Interconnection and Net Metering
 - Customer Rates and Data Access
 - Maximizing Grid Investments
 - Energy Efficiency Programs and Resource Standards
- OLEM's [RE-Powering America's Land Initiative](#): encourages development of renewable energy on contaminated lands and provides site identification tools, for example the [RE-Powering Mapper tool](#) that screens sites for Renewable energy

EPA's Tools and Resources - Electricity Generation and Use Measures (Quantification)

- [AVoided Emissions and geneRation Tool \(AVERT\)](#): a free tool designed to evaluate county, state, and regional changes in emissions from electric power plants and displaced fuel-burning vehicles resulting from energy policies and programs such as energy efficiency, renewable energy, and electric vehicles
- [Energy Savings and Impacts Scenario Tool \(ESIST\)](#): an Excel-based planning tool for analyzing the energy savings and costs from customer-funded energy efficiency programs and their impacts on emissions, public health, and equity
- [Guidebook for Energy Efficiency Evaluation, Measurement and Verification \(EMV\)](#): to help state, local, and tribal air and energy officials take steps to learn about, establish, or refine their EM&V approaches

Transportation: Policy & Program Examples



Transition to Clean Vehicles

Increase share of electric vehicles (EVs) and expand charging infrastructure; Purchase of EVs for government fleets



Reducing Emissions at Ports and Freight Corridors

Purchase zero-emission vehicles/equipment to replace older diesel vehicles/equipment; Reduce idling (e.g., shore power, vessel-speed reduction); Optimize freight efficiency (reduce empty miles, co-load pairing, intermodal infrastructure, etc.)



Adopt Climate Regulations

Adopt clean fuel standards for transportation sector; Consider other policy options



Retire and Replace Other Nonroad Equipment

Retire and replace other old nonroad equipment; Replace older switcher locomotive and line-haul engines with zero-emissions technologies; *Note - some nonroad equipment may be found in other sectors of climate plans (e.g., farm equipment in the agricultural sector)*

Transportation: Policy & Program Examples



Reduce Travel Demand

Provide subsidies for alternative modes; e.g., transit subsidies, guaranteed ride home, ride match, telework, and flexible work schedules



Promote Travel Alternatives

Improve transit – expanded geographic or temporal coverage, improve travel time (e.g., bus only lanes, bus priority at signals); Expand/improve pedestrian and bicycle infrastructure



Transportation Pricing

Consider options for parking pricing; Consider options for travel pricing such as vehicle miles traveled or congestion pricing



Sustainable Communities

Shift population and employment growth to more compact neighborhoods; Explore options for Transit-Oriented Development, urban growth boundaries, or mixed-use land uses

EPA's Tools and Resources - Transportation Measures (Evaluation and Quantification)

- For transportation, many of our resources can be helpful for doing both evaluation and quantification
- E.g., guidance documents on our [State and Local Transportation Resources](#) website describe types of measures to consider and methods for quantifying their emissions benefits
 - Guidance documents cover commuter programs, diesel retrofits/replacements, land use, locomotive idle reduction, transportation control measures, and transportation pricing
- EPA's MOVES model is key resource as well as part of some available tools

EPA's Tools and Resources - Transportation Measures (Evaluation and Quantification)

- Transition to Clean Vehicles:
 - The [U.S. National Blueprint for Transportation Decarbonization](#): Blueprint for cutting all GHGs from the transportation sector by 2050, developed by EPA, DOE, DOT, and HUD
 - *Transition to clean options* is one of three strategies emphasized
 - EPA's [Green Vehicle Guide](#) – information about passenger vehicles' efficiency and emissions
 - EPA's [Automotive Trends Report](#) – information about passenger vehicle's GHG emissions, fuel economy, and auto manufacturers' performance meeting EPA's GHG standards
 - [FuelEconomy.gov](#) – a jointly managed EPA-DOE website that provides fuel economy estimates, energy and environmental impact ratings, calculators and other tools
 - EPA's [MOVES](#) model: EPA's onroad and nonroad vehicle emissions model can be used to determine the GHG and co-pollutant benefit of switching from traditional vehicles to zero emission versions

EPA's Tools and Resources - Transportation Measures (Evaluation and Quantification)

- Reducing Emissions from Ports and Freight Corridors; Retire and Replace Other Nonroad Equipment:
 - EPA's [Ports Initiative](#), which includes Technical Resources for Ports, Best Practices, and Community-Port Collaboration. [Technical Resources](#) include:
 - Shore Power Technology Assessment
 - Port Emissions Inventory Guidance
 - National Port Strategy Assessment
 - [Guidance on quantifying emissions benefits of replacing diesel vehicles and equipment](#) with zero emission versions
 - EPA's [Diesel Emission Quantifier](#) - a web-based tool to evaluate clean diesel projects
 - SmartWay and sustainable transportation supply chains

EPA's Tools and Resources - Transportation Measures (Evaluation and Quantification)

- Reducing Travel Demand, Promoting Travel Alternatives, and Pricing:
 - The [U.S. National Blueprint for Transportation Decarbonization](#)
 - Improving efficiency by expanding affordable, accessible, efficient, and reliable options like public transportation is another of the three strategies emphasized
 - EPA's website about [Travel Efficiency Strategies](#) – strategies that reduce travel activity, especially single-occupancy travel. Website includes:
 - EPA's Travel Efficiency Assessment Method (TEAM)
 - Case studies done with state and local agencies, to assess potential benefits of strategy adoption
 - “User guide” that includes lists of possible measures and step-by-step instructions for quantifying benefits



EPA's Tools and Resources - Transportation Measures (Evaluation and Quantification)

- Sustainable Communities:

- The [U.S. National Blueprint for Transportation Decarbonization](#)

- Increasing convenience by supporting community design and land-use planning at the local and regional levels is another of the three key strategies

- EPA's [Travel Efficiency Strategies](#) website – includes resources that highlight types of land use changes that state and local agencies can adopt to reduce vehicle emissions

- EPA's [Smart Growth](#) website – includes examples of smart growth, case studies, technical tools and other resources



BREAK
(15 Mins)

Commercial & Residential Buildings: Policy & Program Examples



Benchmarking

Measuring building energy use (and in some case water and waste use) and comparing it to similar buildings, its own historical use, or a reference performance level



Financial Incentives for Energy Efficiency and Efficient Electrification of Buildings

Eases cost of energy efficiency retrofits and measures, and efficient and electric home appliances; includes tax credits, rebates, and registration fee reductions



Building Performance Standards

Establish specific performance levels that buildings must achieve; applied to existing commercial and multifamily buildings



Energy Efficiency and Efficient Electrification Building Codes, Standards, and Permitting

Requires and/or prioritizes energy efficiency and/or all-electric design including electric vehicle supply equipment readiness in building codes and standards; streamlines permitting process

EPA's Tools and Resources - Commercial & Residential Buildings Measures (Evaluation)

- [ENERGY STAR for Policymakers](#) – This webpage provides a one-stop shop for how jurisdictions can use the ENERGY STAR Portfolio Manager® tool and other ENERGY STAR offerings to implement voluntary programs and mandatory policies focused on improving the energy performance of existing commercial and multifamily buildings in their communities.
- [Building Performance Standards: Overview for State and Local Decision Makers](#) – This section of a larger toolkit for government decisionmakers explores Building Performance Standards (BPS) policies, providing an overview of BPS requirements and information on key decision points in policy design and implementation including related to the use of ENERGY STAR Portfolio Manager.

EPA's Tools and Resources - Commercial & Residential Buildings Measures (Evaluation)

- [ENERGY STAR Residential New Construction](#) – The ENERGY STAR program offers recognition for new construction single family homes, multifamily housing, and manufactured housing that meet specified requirements.
- [ENERGY STAR Home Upgrade](#)– This initiative offers a set of six improvements that homeowners can choose from – and implement at their own pace – that together deliver significant energy and cost savings.
- [Clean Energy Finance Guide](#) – This guide summarizes a wide range of financing programs and policies that state and local governments and others have used – and can use – to support investments in clean energy.

Industry: Policy & Program Examples



Energy Efficiency Technologies and Practices

Efficiency through energy management including benchmarking, efficient process, basic system improvement



Material Efficiency

Increased use of products and materials that are reused, remanufactured, and recycled to reduce production of energy intensive primary materials



Renewable Energy, Carbon Capture, and Energy Storage

Use of on-site renewables, self-generated biomass residues as fuel, hydrogen or other generated renewable gases, and/or Carbon Capture, Utilization & Storage (CCUS) technology



Electrification

Encourage industry to switch from fossil fuel to electricity for certain heating needs; *Ex. Warming a piped fluid*

EPA's Programs, Tools, and Resources - Industry Measures (Evaluation)

- [Industrial Energy Management \(ENERGY STAR\)](#): resources and tools on industrial energy management and energy efficiency to assist industry in reducing costs and saving energy
 - Coming soon: ENERGY STAR Industrial Hubs throughout the US to service needs of industry in energy efficiency
 - [ENERGY STAR Industrial Partnership](#): over 800 industrial manufacturing companies who share best practices and practical advice across industries; refer industry for ENERGY STAR support
 - [ENERGY STAR Challenge for Industry](#): call-to-action for industrial sites to reduce their energy intensity by 10 percent within 5 years and earn EPA recognition; have industry commit to the goal and ENERGY STAR will assist industry to achieve
 - [ENERGY STAR Plant Certification](#): select manufacturing plants can earn ENERGY STAR certification through using the [industry-specific Energy Performance Indicator \(EPI\)](#) and scoring a 75 or higher
- [Emerging Trends in Supply Chain Emission Engagement](#): report on initiatives leading companies have begun implementing over the last decade to manage GHG emissions resulting from their supply chains.
- [Methane Challenge Program](#): industry partners transparently report systematic and comprehensive actions to reduce methane emissions and are publicly recognized as leaders in reducing methane emissions in the U.S.

Agriculture/Natural and Working Lands: Policy & Program Examples



Anaerobic Digestion

Anaerobic digestion captures and converts methane from manure, food waste, and other organics to renewable energy



Soil, Crop, and Feed Management

Carbon storage can be enhanced through increasing the mass and quality of plant and animal inputs to soils; improving soil microbial diversity and abundance; maintaining living plant cover on soils year-round; Enteric fermentation emissions from livestock can be reduced through feed management



Composting

Composting converts organic materials into a nutrient-rich soil amendment or mulch and improves carbon sequestration



Forested Lands Preservation and Restoration

Carbon storage in the land use, land use change, and forestry (LULUCF) sector through productive use of forested land and by reducing conversion of land to settlements and agriculture.

EPA's Tools and Resources - Agriculture/Natural and Working Lands Measures (Evaluation)

- [Agriculture Air Quality Conservation Guide](#): The EPA and USDA have developed reference guides that provides options for improving air quality on agricultural lands and from livestock and poultry operations
- Diverting food and other organic waste to composting and anaerobic digestion to create soil amendments
 - EPA provides information and data related to composting and anaerobic digestion methods, benefits and approaches.
 - [Composting Process](#) and [Reducing the Impact of Wasted Food by Composting](#)
 - [Anaerobic Digestion](#)

EPA's Tools and Resources - Agriculture/Natural and Working Lands Measures (Evaluation and Quantification)

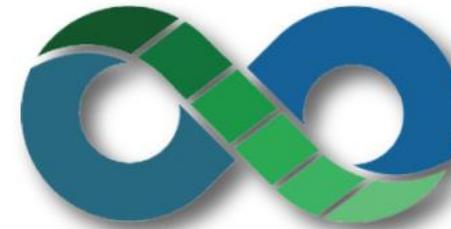
- [AgSTAR](#): Biogas Recovery in the Agriculture Sector
 - EPA/USDA program to reduce methane emissions via manure management
- [Agriculture and Land Use National Greenhouse Gas Inventory Software \(ALU\)](#)
 - Tool which guides a user through the process of estimating GHG emissions and removals related to agricultural and forestry activities following the Intergovernmental Panel on Climate Change (IPCC) guidance
 - Includes a mitigation module allowing users to quantify potential emissions impacts of changing agriculture and land use practices

Waste & Materials Management: Policy & Program Examples



Energy Management, Energy Efficiency and Renewable Energy at Wastewater Plants

Benchmarking energy, data analytics, equipment upgrades, operational modifications, renewable energy options, and retrofits to facility buildings



Circular Economy and Sustainable Materials Management

Systematic approach to using and reusing materials more productively and sustainably throughout their entire life cycles



Landfill Gas Recovery

Recovered landfill gas can be utilized to generate electricity, produce renewable natural gas, fuel industries, and heat buildings



Sustainable Management of Food

Systematic approach that seeks to reduce wasted food and its associated impacts over the entire life cycle

EPA's Programs and Resources – Waste and Materials Management Measures (Evaluation)

- [Energy Efficiency and Energy Usage Options for Water Utilities](#): this webpage offers webinars, tools, case studies, and resources on energy efficiency and renewable energy options at drinking water and wastewater plants
- [Landfill Methane Outreach Program \(LMOP\)](#):
 - Voluntary program that works with communities, states, landfill owners, utilities, and energy industry to avoid methane emissions from landfills
 - Offers tools, resources, and technical assistance on landfill gas projects
- [Waste Reduction Model \(WARM\)](#): this tool provides high-level estimates of potential greenhouse gas emissions reductions, energy savings, and economic impacts from several different waste management practices.
- [ReCoN](#): This tool helps communities and individuals estimate embodied carbon, the climate footprint across the full lifecycle of purchasing and/or manufacturing materials with varying degrees of post-consumer recycled content.



EPA's Programs and Resources – Waste and Materials Management Measures (Evaluation)

- [Circular Economy](#) and [Sustainable Materials Management](#):
 - These webpages offer data, strategies and tools to support the prioritization of actions to reduce impacts associated with waste management.
- [Sustainable Management of Food](#)
 - This webpage offers research, data, outreach tools and programs to support efforts to reduce wasted food and its associated impacts.
- [SMM Prioritization Tools](#)
 - These are life cycle-based tools covering the entire economy that can help identify potential opportunities to reduce environmental impact and resource use in the production and consumption of goods and services.

EPA's Tools and Resources – Multi-Sector Measures (Evaluation and Quantification)

- [GLIMPSE](#):
 - Multi-sector: Power sector, oil and gas, industry, agriculture, buildings, and transportation
 - Multi-pollutant: GHGs (CO₂, CH₄, and N₂O) and air pollutants (NO_x, SO₂, PM_{2.5}, CO, NH₃)
 - Resolution: National with state-level spatial resolution; 2015 through 2050 in 5-year increments
 - Policy types supported: Technology and fuel subsidies, market share targets, emission caps
- [AVoided Emissions and geneRation Tool \(AVERT\)](#): a free tool designed to evaluate county, state, and regional changes in emissions from electric power plants and displaced fuel-burning vehicles resulting from energy policies and programs such as energy efficiency, renewable energy, and electric vehicles
- [Non-CO₂ Greenhouse Gas Emission Projections & Mitigation Report and Mitigation Assessment Model](#): the technical report series provides projected estimates of emissions and technical and economic mitigation estimates of non-CO₂ GHGs from anthropogenic sources for all 50 states in the U.S.

Identify and Evaluate GHG Emission Reduction Measures

EPA Tool/Resource	Illustrative Measure being Evaluated	Electricity Generation	Transportation	Commercial & Residential Buildings	Industry	Agriculture/ Natural & Working Lands	Waste & Materials Management
Energy and Environment Guide to Action (GTA)	Utility policies to enable clean generation and efficient energy use (e.g., system planning, utility financial incentives, net metering, and energy efficiency programs and resource standards)	✓		✓			
Assessment of Fuel Cell Technologies at Ports	Incentives for fuel cell technologies		✓				
Building Performance Standards: Overview for State and Local Decision Makers	Building Performance Standards			✓			
Industrial Energy Management (ENERGY STAR)	Energy efficiency rebates for industrial plants				✓		
Waste Reduction Model (WARM)	Evaluating waste management schemes for potential GHG reductions, energy savings, and economic impacts. Baseline and alternative waste management practices—source reduction, recycling, anaerobic digestion, combustion, composting and landfilling.					✓	✓

Quantify Emission Reduction Measures

EPA Tool/Resource	Illustrative Measure being Quantified	Output (GHG Emissions)	Output (Co-Pollutant Emissions)	Electricity Generation	Transportation	Commercial & Residential Buildings	Industry	Agriculture/ Natural & Working Lands	Waste & Materials Management
MOVES	Clean fuel standards for transportation sector; Zero Emission Vehicle program	✓	✓		✓				
GLIMPSE	Residential Heat Pump Subsidy; Renewable Portfolio Standard (Long Term); EV Market Share Target	✓	✓	✓	✓	✓	✓	✓	
AVERT	Clean Energy Targets (Near Term)	✓	✓	✓	✓	✓	✓		
ESIST	Energy Efficiency in Buildings	✓	✓	✓		✓	✓		
Non-CO ₂ Greenhouse Gas Mitigation Assessment Model	Animal manure digesters to capture methane and generate renewable energy or produce renewable fuel.	✓					✓	✓	✓

Aug 9, 2-3 PM ET: The Landscape of Measure-level GHG Quantification in Existing Climate Action Plans

Training Description:

- CPRG quantification requirements for GHG reduction measures
- EPA's review of existing state and local CAPs to identify examples of quantified measures
- Summary review findings including the number of example measures identified, quantification tools used, and sectors covered by example measures

Upcoming Trainings

- **Week of Aug 7:** EPA Climate Action Funding Fair with USDA, DOE, HUD, DOI, DOT, and Treasury on IRA and other funding opportunities (five sessions on each of the key CPRG sectors and one session on tribal programs, each 90-120 minutes)
- **Aug 9, 2-3 PM ET:** The Landscape of Measure-level GHG Quantification in Existing Climate Action Plans
- **Aug 16, 2-3 PM ET:** Low Income/Disadvantaged Communities (LIDAC) Benefits Analysis
- **Aug 23, 2-3 PM ET:** Workforce Planning Analysis
- **Aug 30, 2-3 PM ET:** Meaningful Engagement - Update and Technical Resources

CPRG Technical Assistance Forums

- Opportunity for peer-to-peer technical assistance, collaboration, and mentoring.
- Sharing of case studies, best practices, and lessons learned
- Forums will focus on key plan elements (e.g., emission inventories, best practices for collaboration, key sectors for GHG reductions, benefits to low income and disadvantaged communities, etc.)
- Facilitated and led by EPA subject matter experts and contractors
- Registration for forums will be sent out to lead entities next week!

EPA Tool/Resource	EPA Contact
Energy and Environment Guide to Action (GTA)	Phil Assmus (assmus.phil@epa.gov)
AVoided Emissions and geneRation Tool (AVERT)	Colby Tucker (tucker.williamc@epa.gov)
RE-Powering America's Land Initiative	Lora Strine (Strine.Lora@epa.gov)
Energy Savings and Impacts Scenario Tool (ESIST); Clean Energy Finance Guide	David Tancabel (Tancabel.David@epa.gov)
MOtor Vehicle Emission Simulator (MOVES); State and Local transportation guidance; Travel Efficiency Strategies	Laura Berry (Berry.Laura@epa.gov)
Other transportation sector resources (e.g. U.S. National Blueprint for Transportation Decarbonization, Green Vehicle Guide, Automotive Trends Report, Ports Initiative, etc.	Meg Patulski or Laura Berry can direct any questions (Patulski.Meg@epa.gov , Berry.Laura@epa.gov)
ENERGY STAR for Policymakers; Building Performance Standards: Overview for State and Local Decision Makers	Brendan Hall (Hall.Brendan@epa.gov)

EPA Tool/Resource	EPA Contact
Industrial Energy Management (ENERGY STAR)	Betsy Dutrow (dutrow.elizabeth@epa.gov)
Methane Challenge Program	Natural GasSTAR Mailbox: (GasSTAR@epa.gov)
AgSTAR: Biogas Recovery in the Agriculture Sector	Jake Dunton (Dunton.Jake@epa.gov)
Agriculture Air Quality Conservation Guide	Bill Schrock (Schrock.Bill@epa.gov)
Reducing the Impact of Wasted Food by Feeding the Soil and Composting; Sustainable Management of Food	Claudia Fabiano (Fabiano.Claudia@epa.gov)
Agriculture and Land Use National Greenhouse Gas Inventory Software (ALU)	John Steller (Steller.John@epa.gov)
Landfill Methane Outreach Program (LMOP)	Klara Zimmerman (Zimmerman.Klara@epa.gov)
GLIMPSE	Dan Loughlin (Loughlin.Dan@epa.gov)
Non-CO2 Greenhouse Gas Emission Projections & Mitigation Report and Mitigation Assessment Model	Shaun Ragnauth (Ragnauth.Shaun@epa.gov)

If you have any questions regarding a program/resource/tool that does not have a contact listed above, please contact Emily Bolger (Bolger.Emily@epa.gov) and/or Mia South (South.Mia@epa.gov).

Q & A

- Please enter questions via the chat box
- Please keep questions on-topic
- We are not able to answer questions about the implementation grants at this time

APPENDIX

CPRG Requirements (States/MSAs) – Quantified GHG Reduction Measures

Priority Climate Action Plan (PCAP) Due: March 1, 2024	Comprehensive Climate Action Plan (CCAP) Due: 2 years from award (summer-fall 2025)	Status Report Due: 4 years from award (2027)
<p>A PCAP must include a focused list of near-term, high-priority, implementation-ready measures that have been identified for implementation by the lead organization and any other collaborating entities (e.g., municipalities, tribes). For the lead organization, such measures should be those that it plans to implement directly and/or in partnership with collaborating agencies as described in their workplan. The PCAP should also indicate which measures could be implemented by other entities (e.g., air pollution control agencies, counties, and municipalities) within the state or metropolitan area.</p> <p>For each measure, the PCAP must provide an estimate of the quantifiable GHG emissions reductions, key implementing agency or agencies, implementation schedule and milestones, expected geographic location if applicable, milestones for obtaining legislative or regulatory authority as appropriate, identification of funding sources if relevant, and metrics for tracking progress. As cost information will be required for measures included in an implementation grant application, grant recipients are encouraged to plan to include quantitative cost estimates in their PCAP; such estimates are required in the CCAP</p>	<p>A CCAP must include a full suite of implementation measures that have been identified to meet the GHG reduction targets specified elsewhere in the CCAP. The plan must include measures addressing the main GHG emission sectors: industry, electricity generation and/or use, transportation, commercial and residential buildings, industry, agriculture, natural and working lands, and waste and materials management.</p> <p>Like the PCAP, for each measure, the CCAP must identify the quantifiable GHG emissions reductions (or enhancement of carbon sinks), key implementing agency or agencies, implementation schedule and milestones, expected geographic location if applicable, milestones for obtaining implementation authority as appropriate, identification of funding sources if relevant, and metrics for tracking progress. It must also include cost information for each measure.</p>	<p>An update on the current status of plan implementation, including the status of implementation for the individual measures identified in the CCAP, must be included in the Status Report. This assessment should identify whether the measure is still under development or has been fully implemented. If a measure is still under development, the report should identify the key parties responsible for action, and indicate what actions are needed to complete implementation of the measure. If a measure has been fully implemented, the Status Report should characterize progress in terms of key metrics identified in the CCAP, such as the metrics included in Section 10.3 “Outcomes.”</p>

CPRG Requirements (Tribes/Territories) – Quantified GHG Reduction Measures

Priority Climate Action Plan (PCAP) Due: April 1, 2024	Comprehensive Climate Action Plan (CCAP) Due: 4 years from award (summer-fall 2027)
<p>A PCAP must include a focused list of near-term, high-priority, implementation-ready measures that have been identified for implementation by the lead organization and any other collaborating entities. For each measure, the PCAP must provide an estimate of the quantifiable GHG emissions reductions, key implementing agency or agencies, implementation schedule and milestones, expected geographic location if applicable, milestones for obtaining implementing authority as appropriate, identification of funding sources if relevant, and metrics for tracking progress. As cost information will be required for measures included in an implementation grant application, grant recipients are encouraged to plan to include quantitative cost estimates in their PCAP; such estimates are required in the CCAP</p>	<p>A CCAP must include a full suite of implementation measures that have been identified to meet the GHG reduction targets specified elsewhere in the CCAP. The plan must include measures addressing the main GHG emission sectors as appropriate: industry, electricity generation and/or use, transportation, commercial and residential buildings, agriculture, natural and working lands, and waste and materials management. For each measure, the CCAP must identify the quantifiable GHG emissions reductions (or enhancement of carbon sinks), key implementing agency or agencies, implementation schedule and milestones, expected geographic location if applicable, milestones for obtaining implementation authority as appropriate, identification of funding sources if relevant, and metrics for tracking progress. It must also include cost information for each measure.</p>

Energy Use and Recovery at Wastewater Facilities

- Electric use for moving and treating wastewater and biosolids in the US are significant
 - 25-30% of total plant O&M Cost
 - Consumption and costs expected to continue to rise
- Numerous challenges impacting energy consumption such as emerging water quality concerns requiring advanced treatment, climate change impacts, population growth, and others.
- Over the last two decades, wastewater is increasingly being managed as a valuable resource (**energy**, nutrients, water) and not as a waste.
- Innovative treatment and management technologies and design concepts are available that reduce energy consumption, recover energy, and reduce GHG emissions.
- More facilities are focused on moving towards energy self-sufficiency and on reducing direct and indirect GHGs.

Elements of Wastewater Facility Energy Management

- Management motivation to implement energy initiatives
- ***Utility Energy Management Plan****
- Process optimization & operator education
- High level of automation and process analysis tools
- ***Innovative Energy Conservation Measures & Retrofits****
- Enhanced primary wastewater sedimentation and carbon capture
- Energy-efficient nutrient removal/recovery and low-energy side stream nutrient treatment
- Anaerobic digestion &:
 - Biosolids pre-treatment
 - Co-digestion
- Energy Recovery (CHP, RNG)
- Solar or Wind

*[Energy Efficiency for Water Utilities](#)